

1 ABSTRACT

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3 A method for managing the flow of a plurality of aircraft at an aviation
4 resource, based upon specified data and operational goals pertaining to the aircraft
5 and resource and the control of aircraft arrival fix times at the resource by a system
6 manager, includes the steps of: (a) collecting and storing the specified data and
7 operational goals, (b) processing the specified data to predict an initial arrival fix time
8 for each of the aircraft at the resource, (c) specifying a goal function which is defined
9 in terms of arrival fix times and whose value is a measure of how well the aircraft
10 meet the operational goals based on achieving specified arrival fix times, (d)
11 computing an initial value of the goal function using the predicted initial arrival fix
12 times, (e) utilizing the goal function to identify potential arrival fix times to which the
13 arrival fix times can be changed so as to result in the value of the goal function
14 indicating a higher degree of attainment of the operational goals than that indicated
15 by the initial value of the goal function, (f) if the utilization step yields a goal function
16 whose value is higher than the initial goal function value, defining requested arrival
17 fix times to be those arrival fix times associated with the higher goal function value;
18 but, if the utilization step does not yield a goal function whose value is higher than
19 the initial goal function value, defining requested arrival fix times to be the predicted,
20 initial arrival fix times, (g) communicating the requested arrival fix times to the
21 system manager to determine whether authorization may be obtained from the system
22 manager for the aircraft to use the requested arrival fix times, (h) if the arrival fix
23 times authorization is obtained, establishing the requested arrival fix times as the
24 targeted arrival fix times of the aircraft; but, if the arrival fix times authorization is
25 not obtained, continuing to use the goal function to identify potential arrival fix times
26 which can be communicated to the system manager until arrival fix times
27 authorization is obtained.

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